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ABSTRACT

Six high school student teachers were video-taped during the first, seventh and fourteenth weeks of their sixteen-week teaching semester. Pupils in these classes evaluated the personal characteristics and instructional behaviors of their student teachers using the Classroom Teacher Inventory. Resulting data suggested that the original sample of student teachers included two who were perceived by pupils as most effective and two who were perceived as least effective. The remaining data analysis focused on similarities and differences between the most and least effective student teachers. Most effective student teachers were perceived by their pupils as being nonpunitive, consistent and predictable. Instructionally, the most effective student teachers were perceived by their pupils as showing enthusiasm, asking interesting questions, accomplishing goals, and being very clear in their teaching. Stimulated recall analysis of the video tapes suggested differences in the management of transitions between lesson segments. The most effective student teachers averaged fewer transitions per lesson, used less time for transitions, and experienced fewer behavioral problems during transitions. Also, the most effective student teachers used a much smaller proportion of the total lesson time for transitions than did the least effective student teachers. (JD)

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USE OF STIMULATED RECALL IN VIDEO TAPE ANALYSIS OF STUDENT TEACHER DEVELOPMENT

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USE OF STIMULATED RECALL IN VIDEO TAPE ANALYSIS OF STUDENT TEACHER DEVELOPMENT

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ABSTRACT

Six high school student teachers were video-taped during the first, seventh and fourteenth weeks of their sixteen-week teaching semester. Pupils in these classes evaluated the personal characteristics and instructional behaviors of their student teachers using the Classroom Teacher Inventory (C.T.I.) (Brooks, 1977). The C.T.I. was designed to solicit pupil ratings of fifteen teacher presage characteristics and nine instructional behaviors. Results suggested that all student teachers were considered friendly and competent in their subject matter, but differences were observed among student teachers in other areas. Data suggested that the original sample of six student teachers included two student teachers who were perceived by pupils as most effective and two student teachers who were perceived by pupils as least effective. The remaining data analysis focused on similarities and differences between the most effective and the least effective student teachers.

Student teachers labeled as most effective were perceived by their pupils as being nonpunitive, consistent and predictable. Instructionally, the most effective student teachers were perceived by their pupils as showing enthusiasm, asking interesting questions, accomplishing goals, and being very clear in their teaching.

Stimulated recall analysis of the video tapes suggested differences in the management of transitions between lesson segments. The most effective student teachers averaged fewer transitions per lesson, used less time for transitions, and experienced fewer behavioral problems during transitions. Also, the most effective student teachers used a much smaller proportion of the total lesson time for transitions than did the least effective student teachers.

PROBLEM

Most of the research into the characteristics and teaching behaviors of the effective teacher have concentrated on teachers-in-service (Brooks, 1980; Emmer, 1981; Shavelson, 1981). And yet it may be that there are certain requisite characteristics and behaviors that are particularly relevant to the student teaching experience.

For example, this investigator has observed the management of transitions to be a particular problem for many student teachers. A typical class period consists of a number of instructional units, or segments, which are linked together by brief transitory phases called transitions (Arlin, 1979). Where teacher behaviors are concerned, several investigators have suggested that transitions are especially worthy of study. They all support the idea that the teacher's managerial competence would be seriously tested during transitions (Gump, 1967; Kounin, 1970; Arlin, 1979).

The use of stimulated recall to analyze video-taped teaching behavior has mainly been applied to teachers-in-service (Conners, 1978; Tuckwell,

1980; Shavelson, 1981). However, this technique seems appropriate to use with student teachers for the purpose of feedback on teaching effectiveness.

It is hoped that results obtained from the present study will contribute to the limited data base on student teacher effectiveness.

PURPOSE

The first purpose of this study was to use pupil perceptions of their student teachers to identify the most effective and the least effective student teachers and to determine differences in personal characteristics and instructional behaviors between the most and least effective student teachers.

The second purpose was to determine differences in the management of transitions between the most effective and least effective student teachers by analyzing video tapes of the student teachers.

Three hypotheses were examined: (1) student teachers rated as most effective and least effective will differ significantly on pupil perceptions of teacher characteristics; (2) student teachers rated as most effective and least effective will differ significantly on pupil perceptions of teacher behaviors; (3) student teachers rated as most effective and least effective will differ in their management of transitions.

PROCEDURE

Six high school student teachers were video-taped during the first, seventh and fourteenth weeks of the 1986 winter semester. Pupils in these video-taped classes were asked to rate their student teachers' characteristics and teaching behaviors using the Classroom Teacher Inventory

(C.T.I.) (Brooks, 1977). This evaluation occurred at the conclusion of the fourteenth week. Chi Square and Analysis of Variance tests and a Scheffe Procedure were conducted to analyze differences between the two most effective student teachers and the two least effective student teachers in the areas measured by the C.T.I.

During the fifteenth week student teachers reviewed their tapes with the investigator. Using the process of stimulated recall (Tuckwell, 1980), the student teachers and the investigator focused on the student teachers' use of transitions between lesson segments. Once agreement was established on the occurrence and logistics of the transitions, the next step was to tabulate, with the student teachers, the frequency of transitions, time spent in transitions, proportion of total class time in transition, and frequency of "desists" at transitions.

Finally, the data on transitions was analyzed to determine differences in the management of transitions between the most effective and the least effective student teachers.

RESULTS

Analysis of the C.T.I. pupil ratings of their student teachers suggested that two teachers, Teacher 11 and Teacher 13, were perceived as most effective, while two teachers, Teacher 9 and Teacher 14, were perceived as least effective. Chi Square analysis of pupil ratings of fifteen teacher characteristics suggested nonsignificance only once for most effective Teacher 13 and only twice for most effective Teacher 11. Nonsignificance was suggested eight times for the least effective Teacher 9 and seven times for least effective Teacher 14.

While this study focused on differences, it is worthy to note all student teachers, including the least effective, were perceived by pupils to be prepared in subject matter, to be friendly, and to enjoy teaching.

Findings related to the hypotheses were as follows:

(1) The most effective student teachers were found to be significantly different from the least effective student teachers in (a) having wide interest patterns ($P<.01$); (b) being nonpunitive, consistent and predictable ($P<.01$); and (c) being the type of teacher pupils hope to have again ($P<.01$). (Table 3)

(2) The most effective student teachers were found to be significantly different from the least effective student teachers in these teaching behaviors (Scheffe Procedure): (a) clarity of instruction ($P<.05$); (b) displaying enthusiasm ($P<.05$); (c) accomplishing goals ($P<.05$); and (d) asking interesting questions ($P<.05$). (Table 4)

(3) The most effective student teachers were found to be different from the least effective student teachers in the management of transitions in the following ways: (a) a lower average number of transitions per lesson; (b) a lower average time during transitions; (c) a lower proportion of total class time spent on transitions; and (d) a lower incidence of pupil behavior problems requiring desists. (Tables 7 and 8)

SIGNIFICANCE

Data analysis of this study has suggested that pupil ratings of their student teachers can provide useful information to identify characteristics and teaching behaviors of student teachers perceived to be most effective and least effective. This information should be valuable to institutions training teachers and should help student teachers understand how they are perceived by their pupils.

The use of stimulated recall in reviewing video tapes of student teachers can provide meaningful feedback to student teachers on their actual performance, can provide university supervisors a technique for assisting student teacher growth, and can provide a means for accumulating valuable video tapes to be used in the preservice training of future teachers.

Focusing on simple, research-based procedures such as the effective management of transitions can assist teacher educators in presenting practical, easily understood steps for analyzing the teaching process.

With all the national attention given to the problem of subject matter preparation of teachers it is especially significant that this study found that even the least effective teachers were rated prepared in subject matter. This suggests a need to be institution-specific, rather than generic, in criticizing teacher training.

Another investigator (Brooks, 1980) using the Classroom Teacher Inventory with science students found that there was no significant difference between effective and ineffective science teachers in the area of subject matter preparation. Some of his other results also support the present study. For example, he, too, found significance in the

characteristic of consistency and predictability and in the teaching behaviors of clarity and enthusiasm. Where there is discrepancy between his study and the present study, this could be attributable to the fact that he used teachers-in-service rather than student teachers.

With regard to student teachers' management of transitions, the results of this study are generally supported by a major researcher in this area (Arlin, 1979). He found that effective teachers used fewer transitions and required less time for transitions than did effective student teachers.

Teacher 9, a "least effective teacher," in viewing her tapes concluded "I can tell some of them don't like me, and it bothers me ... I'm easy to get off track when they ask me questions ... I'm not sure I want to teach."

Teacher 13, the "most effective teacher," in viewing her tapes said "I can tell they like me ... I look like I belong up there!"

Perhaps an area for further study would involve the student teacher's self-concept. Lack of confidence was especially noticeable in the least effective during transitions.

Finally, this study has implications for Miami University and other teacher training institutions which do a good job in subject matter preparation but might find some of the data valuable in improving teacher training.

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TABLE 1

CLASSROOM TEACHER INVENTORY
TEACHER CHARACTERISTICS
% OF YES RESPONSES

QUESTION NUMBER	CHARACTERISTIC MEASURED	TEACHER 9	TEACHER 10	TEACHER 11	TEACHER 12	TEACHER 13	TEACHER 14
1	Wide Interest Patterns	47.6	68.4	100.0	62.1	95.0	40.9
2	Subject Area Prepared	71.4	89.5	92.9	89.7	100.0	86.4
3	Recognize Individual Differences	38.1	42.1	85.7	24.1	70.0	68.2
4	Explain at Appropriate Level	28.6	52.6	85.7	79.3	95.0	54.5
5	Use Advanced Organizers	85.7	52.6	78.6	62.1	90.0	90.9
6	Perceived as Friendly	85.7	94.7	100.0	65.5	85.0	95.5
7	Students Desire to Know Teacher Better	42.9	68.4	64.3	55.2	90.0	68.2
8	Nonpunitive, Consistent and Predictable	47.6	73.7	71.4	55.2	100.0	50.0
9	Organized and Systematic	76.2	68.4	71.4	48.3	80.0	72.7
10	Imaginative	57.1	42.1	57.1	69.0	75.0	36.4
11 *	Recognized and Admit Mistakes	71.4	94.4	92.9	69.0	90.0	81.8
12	Value Student Feelings	61.9	70.6	57.1	58.6	80.0	86.4
13	Enjoy Vocation	71.4	68.4	71.4	69.0	95.0	95.5
14 *	Understands Student Problems	52.4	73.7	92.9	72.4	95.0	77.3
15	Students Desire to Have Teacher Again	33.3	50.0	78.6	58.6	90.0	36.0

* % of no responses reported. On these two questions an aswer of No was the positive response.

TABLE 2

TEACHER CHARACTERISTICS
CHI SQUARE VALUES AND SIGNIFICANCE LEVELS

QUESTION NUMBER	CHARACTERISTIC MEASURED	X^2	DF	SIGNIFICANCE LEVEL
1	Wide Interest Patterns	14.226	1	$P < .001$
2	Subject Area Prepared	85.723	1	$P < .001$
3	Recognize Individual Differences	0.681	1	NS
4	Explain at Appropriate Level	15.281	1	$P < .001$
5	Use Advanced Organizers	60.193	1	$P < .001$
6	Perceived as Friendly	90.274	1	$P < .001$
7	Students Desire to Know Teacher Better	13.333	1	$P < .001$
8	Nonpunitive, Consistent and Predictable	20.645	1	$P < .001$
9	Organized and Systematic	40.238	1	$P < .001$
10	Imaginative	8.036	1	$P < .005$
11	Recognize and Admit Mistakes	61.752	1	$P < .001$
12	Value Student Feelings	40.238	1	$P < .001$
13	Enjoy Vocation	71.704	1	$P < .001$
14	Understands Student Problems	47.207	1	$P < .001$
15	Students Desire to Have Teacher Again	9.660	1	$P < .002$

TABLE 3
CLASSROOM TEACHER INVENTORY
CHI SQUARE VALUES AND SIGNIFANCE LEVELS (WITHIN GROUPS) D.F.1

QUESTION NUMBER	CHARACTERISTIC MEASURED	TEACHER 9	TEACHER 10	TEACHER 11	TEACHER 12	TEACHER 13	TEACHER 14
1	Wide Interest Patterns	X^2 0.0 NS	X^2 2.579 NS	X^2 14.000 $P < .001$	X^2 1.690 NS	X^2 16.200 $P < .001$	X^2 0.727 NS
2	Subject Area Prepared	X^2 5.000 $P < .025$	X^2 14.22 $P < .001$	X^2 13.000 $P < .001$	X^2 23.148 $P < .001$	X^2 20.000 $P < .001$	X^2 13.762 $P < .001$
3	Recognize Individual Differences	X^2 0.800 NS	X^2 0.222 NS	X^2 7.143 $P < .008$	X^2 4.840 $P < .028$	X^2 3.200 NS	X^2 2.909 NS
4	Explain at Appropriate Level	X^2 3.857 $P < .050$	X^2 0.053 NS	X^2 9.308 $P < .002$	X^2 15.385 $P < .001$	X^2 16.200 $P < .001$	X^2 0.182 NS
5	Use Advanced Organizers	X^2 12.800 $P < .001$	X^2 1.667 NS	X^2 6.231 $P < .013$	X^2 12.800 $P < .001$	X^2 15.211 $P < .001$	X^2 14.227 $P < .001$
6	Perceived as Friendly	X^2 10.714 $P < .001$	X^2 15.211 $P < .001$	X^2 14.000 $P < .001$	X^2 16.200 $P < .001$	X^2 17.000 $P < .001$	X^2 18.182 $P < .001$
7	Students Desire to Know Teacher Better	X^2 0.429 NS	X^2 2.579 NS	X^2 1.923 NS	X^2 1.385 NS	X^2 15.211 $P < .001$	X^2 2.909 NS
8	Nonpunitive, Consistent and Predictable	X^2 0.048 NS	X^2 9.000 $P < .003$	X^2 10.000 $P < .002$	X^2 4.545 $P < .033$	X^2 16.000 $P < .001$	X^2 20.0 NS
9	Organized and Systematic	X^2 7.200 $P < .007$	X^2 4.765 $P < .029$	X^2 7.364 $P < .007$	X^2 7.118 $P < .008$	X^2 10.884 $P < .001$	X^2 4.545 $P < .033$
10	Imaginative	X^2 0.429 NS	X^2 0.059 NS	X^2 0.692 NS	X^2 14.727 $P < .001$	X^2 9.941 $P < .002$	X^2 1.636 NS
11 *	Recognize and Admit Mistakes	X^2 3.857 $P < .050$	X^2 14.222 $P < .001$	X^2 13.000 $P < .001$	X^2 10.667 $P < .001$	X^2 15.211 $P < .001$	X^2 8.909 $P < .003$
12	Value Student Feelings	X^2 1.800 NS	X^2 2.882 NS	X^2 5.444 $P < .020$	X^2 8.048 $P < .005$	X^2 16.000 $P < .001$	X^2 11.636 $P < .001$
13	Enjoy Vocation	X^2 5.000 $P < .025$	X^2 4.765 $P < .029$	X^2 10.000 $P < .002$	X^2 17.190 $P < .001$	X^2 19.000 $P < .001$	X^2 21.000 $P < .001$

TABLE 3
CLASSROOM TEACHER INVENTORY
PAGE 2

QUESTION NUMBER	CHARACTERISTIC MEASURED	TEACHER 9	TEACHER 10	TEACHER 11	TEACHER 12	TEACHER 13	TEACHER 14
14 *	Understands Student Problems	X^2 0.200 NS	X^2 5.56 P< .018	X^2 13.000 P< .001	X^2 11.560 P< .001	X^2 19.000 P< .001	X^2 .8.048 P< .005
15	Students Desire to Have Teacher Again	X^2 1.800 NS	X^2 0.0 NS	X^2 8.333 P< .004	X^2 11.892 P< .001	X^2 15.211 P< .001	X^2 0.800 NS
	TOTALS NS	8	8	2	2	1	7

TABLE 4

SUMMARY OF MEAN SCORES, F VALUES, AND SIGNIFICANCE LEVELS

Behavior Measured	Teacher 9	10	11	12	13	14	F Values	Significance Level
1. Clarity in Instruction	2.73*	2.87*	1.90	2.08	1.50	2.54*	8.67	P < .001
2. Provides Opportunities for Learning	2.80**	2.42	1.53	2.12	1.52	2.04	6.21	P < .001
3. Shows Enthusiasm	3.10**	2.76*	2.20	2.00	1.27	2.57*	7.75	P < .001
4. Accomplishes Goals	2.76**	2.56*	1.55	1.95	1.44	2.36*	8.01	P < .001
5. Provides Variety of Learning Opportunities	2.50	2.77	1.54	2.46	1.82	2.81*	4.12	P < .001
6. Explains Until Understanding is Achieved	2.75***	2.17	1.21	1.50	1.31	2.04	7.81	P < .001
7. Uses Student Ideas	2.75	2.50	2.72	2.50	2.06	3.18*	2.79	P < .021
8. Is Supportive and Noncritical	2.33	2.31	1.45	2.57**	1.41	1.91	5.09	P < .001
9. Asks Interesting Questions	2.90*	3.00*	2.08	2.13	1.57	3.54***	10.87	P < .001

* Denotes significantly different at less than .05 level from best score (lowest mean)

** Denotes significantly different at less than .05 level from second best score (second lowest mean)

___ Denotes best score (lowest mean)

TABLE 5

VIDEOTAPE ANALYSIS OF TEACHER USE OF TRANSITIONS

TEACHER 9	Tape 1	Tape 2	Tape 3	Average
Number of Transitions	3	4	3	3.6
Total Time of Transitions	191"	292"	63"	182"
Average Time of Transitions	63.7"	73"	21"	52.6"
Total Class Time	2400"	3000"	2100"	2500"
% Total Time in Transition	.079	.097	.03	.068

TEACHER 11	Tape 1	Tape 2	Tape 3	Averag
Number of Transitions	4	4	3	3.6
Total Time of Transitions	109"	103"	42"	84.6"
Average Time of Transitions	27"	23"	12"	20.6"
Total Class Time	3300"	3300"	2100"	2900"
% Total Time in Transition	.033	.031	.02	.028

TABLE 6

VIDEOTAPE ANALYSIS OF TEACHER USE OF TRANSITIONS

TEACHER 13	Tape 1	Tape 2	Tape 3	Average
Number of Transitions	5	1	5	3.6
Total Time of Transitions	37"	8"	22"	22.3"
Average Time of Transitions	7.4"	8.0"	4.4"	6.6"
Total Class Time	2640"	2640"	2640"	2640"
% Total Time in Transition	.014	.003	.008	.008
Total Number of Desists at Transition	0	0	0	0

TEACHER 14	Tape 1	Tape 2	Tape 3	Averag
Number of Transitions	3	7	5	5
Total Time of Transitions	142"	162"	128"	144"
Average Time of Transitions	47"	23"	25.6"	31.8"
Total Class Time	2520"	3000"	3000"	2840"
% Total Time in Transition	.056	.054	.043	.051
Total Number of Desists at Transition	6	4	3	4.3

TABLE 7

LESS EFFECTIVE TEACHERS USE OF TRANSITIONS

TRANSITIONS	TEACHER 9	TEACHER 14	AVERAGE TEACHERS 9,14
Average Number of Transitions	3.6	5.0	4.3
Average Time of Transitions	52.6"	31.8"	42.2"
% of Total Time in Transition	.068	.051	.059
Average No. Desists of Transition	2.3	4.3	3.3

TABLE 8

EFFECTIVE TEACHERS USE OF TRANSITIONS

TRANSITIONS	TEACHER 11	TEACHER 13	AVERAGE TEACHERS 11,13
Average Number of Transitions	3.6	3.6	3.6
Average Time of Transitions	20.6"	6.6"	13.6"
% of Total Time in Transition	.028	.008	.018
Average No. Desists of Transition	0	0	0